

CLAIMS

1. A conductive ball comprising:

a core (4) formed in a generally spherical shape and formed of a nonmetallic material; and

5 a coating layer coating a surface of the core and having at least a first metal layer (2) and a second metal layer (3), wherein,

the first metal layer (2) is made of a first alloy containing Sn and having noneutectic composition, and

10 the second metal layer (3) is made of a second alloy containing at least either Cu or Ni.

2. The conductive ball as defined in Claim 1, wherein

the first alloy has composition in which a  
15 liquidus temperature rises when a proportion of Sn in composition decreases.

3. The conductive ball as defined in Claim 2, wherein

the first alloy has composition closer to eutectic  
20 composition than to composition whose constituent forms an intermetallic compound.

4. The conductive ball as defined in Claim 2, wherein

the first alloy has composition in which a  
25 liquidus temperature is 240 °C or higher.

5.           The conductive ball as defined in Claim 2, wherein  
              the first alloy has composition in which a  
liquidus temperature is 260 °C or higher.

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6.           The conductive ball as defined in Claim 1, wherein  
              the first alloy contains Ag, and a proportion of  
the Ag in composition is larger than 3.5 weight %.

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7.           The conductive ball as defined in Claim 1, wherein  
              the first alloy contains Ag, and a proportion of  
the Ag in composition is 4 weight % or larger.

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8.           The conductive ball as defined in Claim 1, wherein  
              the first alloy contains Ag, and a proportion of  
the Ag in composition is 5.5 weight % or larger.

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9.           The conductive ball as defined in Claim 5, wherein  
              in the first alloy, a proportion of the Ag in  
composition is smaller than 75 weight %.

10.          The conductive ball as defined in Claim 5, wherein  
              in the first alloy, a proportion of the Ag in  
composition is 37 weight % or lower.

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11.           The conductive ball as defined in Claim 5, wherein  
              in the first alloy, a proportion of the Ag in  
composition is 6.5 weight % or lower.

5    12.           A formation method for an electrode of an  
electronic component comprising:

              disposing the conductive ball (1) as defined in  
Claim 1 on a land (6) of an electronic component (5); and

              heating the conductive ball (1) disposed on the  
10   land (6) of the electronic component (5), wherein

              a maximum temperature for heating the conductive  
ball (1) is a liquidus temperature of the first alloy or  
lower.

15   13.           A formation method for an electrode of an  
electronic component comprising:

              disposing a joint member (13) containing a third  
alloy on at least either the conductive ball (1) as defined  
in Claim 1 or a land (6) of an electronic component (5);

20               disposing the conductive ball (1) on the land (6)  
of the electronic component (5); and

              heating the conductive ball (1) and the joint  
member (13), wherein

              a maximum temperature for heating the conductive  
25   ball (1) and the joint member (13) is a liquidus temperature

of a first alloy of the conductive ball (1) or lower, and is a liquidus temperature of a third alloy of the joint member (13) or higher.

5 14. A formation method for an electrode of an electronic component comprising:

attaching flux (7) to at least either the conductive ball (1) as defined in Claim 1 or a land of an electronic component (5);

10 disposing the conductive ball (1) on the land (6) of the electronic component (5); and

heating the conductive ball (1), wherein the flux (7) contains 0.2 weight % or more halogen.

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15. An electronic component having an electrode (8) using the conductive ball (1) as defined in Claim 1.

16. An electronic component having an electrode (8)  
20 formed by the formation method for an electrode as defined in Claim 12.

17. An electronic component having an electrode (8)  
formed by the formation method for an electrode as defined  
25 in Claim 13.

18. An electronic component having an electrode (8) formed by the formation method for an electrode as defined in Claim 14.

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19. Electronic equipment including the electronic component as defined in Claim 15.

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20. Electronic equipment including the electronic component as defined in Claim 16.

21. Electronic equipment including the electronic component as defined in Claim 17.

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22. Electronic equipment including the electronic component as defined in Claim 18.